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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 : B43L 1/00, G09F 11/18 — A1

(11) International Publication Number: WO 94/25294

(43) International Publication Date: 10 November 1994 (10.11.94)

(21) International Application Number: PCT/US94/04860

(22) International Filing Date: 3 May 1994 (03.05.94)

(30) Priority Data:
08/058,693 3 May 1993 (03.05.93) US

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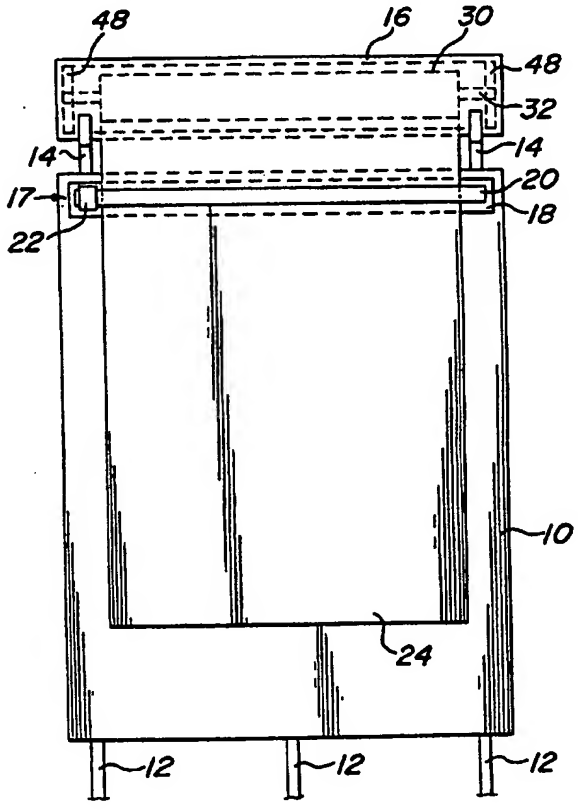
(81) Designated States: CA, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
With international search report.

(54) Title: TRANSPORTING AND DISPLAYING ELECTROSTATICALLY ADHERENT FILM APPARATUS

(57) Abstract

This is a writing apparatus for presentation and display purposes which includes a supply of electrostatically adherent film (24) as a writing medium and a container (16) for storing and transporting the film. The film (24) is disposed in a non-planar form in the container (16) for transportation and storage and is vertically disposed in planar sheet form adjacent a support for writing or displaying during a presentation, which permits the container (16) to have smaller dimensions than the sheet it can provide. The film may be disposed in the container as a roll or as a plurality of overlying sheets.



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TRANSPORTING AND DISPLAYING ELECTROSTATICALLY ADHERENT FILM APPARATUS

Background Of The Invention

This invention relates to writing apparatus which includes an electrostatically adherent film, such as an electret film, as a means of receiving writing. More particularly, this invention relates to apparatus for facilitating the transportation and use of an electrostatically adherent film as a writing surface in presentation, display, and educational applications.

Paper has long been the predominant writing medium. However, it has suffered from certain drawbacks when used in the educational, presentation, and display fields, primarily resulting from the fact that paper is not transparent, is not easily erased and reused, and is not self-adherent.

A widely used medium for displaying written, pictorial, or other visual information ("graphic information") during a presentation is the "flip chart", which is a large (e.g. 24" x 30") pad of paper bound along one edge, and which can be secured to an easel-like flip chart stand to support it in a vertical orientation. A presenter can write upon the sheets of the pad to illustrate a presentation and, to expose fresh paper for further writing, can flip the top written-upon sheet of the pad by folding it along the bound edge of the pad. The standard flip chart has a number of drawbacks, including difficulty in erasure and in displaying previously written upon sheets simultaneously with a sheet presently being written upon due to the use of paper as a writing medium; inconvenience in transportation due to its size and shape; and, due to the binding of the sheets into a pad,

difficulty in interspersing pre-written material with material newly written during a presentation.

An easily-erased alternative to a flip chart is a "white board" which may be erasably written upon with a dry erase marker. Easy erasability has also been provided in a flip-chart format by use of a pad which, instead of paper, consists of a plurality of thin plastic sheets which may be erasably written upon with dry erase markers, bound along one edge to form a pad. An example is disclosed in Canadian Patent No. 1,264,780 and corresponding U.S. Patent No. 5,010,671 to Stonehouse, where the sheets are polypropylene film which may be secured to a surface by "static cling". The Stonehouse device still suffers from drawbacks owing to its pad structure. These include difficulty of transportation due to its size and shape, difficulty in interspersing previously written material with material written during a presentation, difficulty in interspersing sheets having differing characteristics such as transparent sheets and opaque sheets, and difficulty in maintaining written material for use in a future presentation.

Summary of the Invention

It is therefore a general object of the invention to provide an improved system for providing a medium for writing during a presentation.

It is a more specific object of the invention to provide a presentation system which may be transported conveniently.

It is another object of the invention to provide a presentation system which protects the writing medium during transportation.

It is another object of the invention to provide a presentation system in which the writing medium may be erasably written upon with dry erase markers.

It is another object of the invention to provide a presentation system which facilitates collation of sheets of the writing medium for use or reuse in a presentation.

It is another object of the invention to provide a presentation system in which the writing medium comprises sheets of material which are self adherent to surfaces.

This invention is directed to writing apparatus incorporating flexible electrostatically adherent films which may be erasably written upon as a writing medium for use in educational, presentation, display and similar applications. For convenience, but without limitation, such films may be referred to herein as "electret films" which are the preferred embodiment. The apparatus of the invention includes the following basic functional elements: flexible means for receiving and displaying graphic information, which may be referred to as a "writing medium"; means for supporting the writing medium so as to be visible to an audience during a presentation; and means for packaging the writing medium in a form which is easily transported and which preferably protects its contents during transportation and storage.

In accordance with the foregoing objects, the electret film is disposed for transportation or storage in a non-planar fashion, i.e. it is to some extent folded. Preferably the electret film is so disposed for transportation or storage in a container which protects the film from mechanical damage. With the film disposed

in a non-planar fashion in such a container, the container may have a smaller, and preferably substantially smaller, maximum dimension and total dimension (length + width + height) than the maximum dimension and total dimension of the sheets of film which the container may provide for display purposes. By way of comparison, with sheets disposed in a pad structure, the maximum and total dimensions of the pad are substantially the same, but slightly greater, than those of the sheets it contains.

In one embodiment of the invention, the electret film is disposed as a roll in a container, and film may be withdrawn from the roll and adhered to a generally vertical planar surface for display. In another embodiment of the invention, the electret film is disposed in a container as a plurality of sheets in an overlying relationship, the sheets being disposed in a somewhat folded fashion for storage and transportation purposes and disposed in a generally planar fashion for display purposes.

The foregoing and other features and objects of the invention will be better understood with reference to the drawings and the detailed description thereof.

Brief Description of the Drawings

Figures 1-6 illustrate a first embodiment of the invention, and several modifications thereto, in which film material is disposed in a container in roll form for transportation and storage, in which:

Figure 1 is an illustration of the general features of a first embodiment of the invention.

Figure 2 is a side view of the first embodiment of the invention shown in Figure 1.

Figure 3 is an illustration of a cutting assembly useful in the first embodiment of invention.

Figure 4 is an illustration of the bracket of the first embodiment of the invention.

Figures 5a, 5b, and 5c are illustrations of a receptacle, bracket, and cutting assembly, respectively, of a modification of the first embodiment of the invention.

Figure 6a, 6b, and 6c are illustrations of a receptacle, bracket and cutting assembly, respectively, of another modification of the first embodiment of the invention.

Figures 7-10 illustrate a second embodiment of the invention in which film material is disposed in a container in a somewhat folded form for transportation and storage, in which:

Figure 7 is an illustration of preferred apparatus disposed in an open configuration so as to permit display of or writing upon an electret film;

Figures 8a and 8b are illustrations of a preferred clip for detachably securing sheets of electret film to the support of the invention, in an open condition and a closed condition, respectively;

Figure 9 is an illustration of the use of the apparatus in making a presentation; and

Figure 10 is an illustration of the apparatus disposed in a configuration for convenient transportation or storage.

Detailed Description of the Preferred Embodiments

Figures 1-6 show a first embodiment of the invention and several modifications in which electret film is disposed in a roll form to provide convenience of transportation and storage.

Figure 1 shows the general features of the invention in an embodiment which may substitute for conventional paper flip charts in various presentation, display, and educational applications. Figure 2 is a more detailed side view of the apparatus in Figure 1, and Figures 3 and 4 are perspective illustrations of the cutting assembly and the brackets of the first embodiment shown in Figures 1 and 2. The apparatus of the first embodiment includes a plate 10 providing a generally flat surface for supporting an electret film 24 during writing thereon. Because electret films are adherent to most materials, plate 10 may be made from a variety of structurally suitable materials including metal, plastic and others. Plate 10 desirably has fixed to it means such as legs 12 for supporting plate 10 in a generally vertical orientation during use. Desirably, plate 10 and legs 12 comprise a standard flip chart stand, such as is in common use, and the other components of the apparatus to be described hereinafter are adapted to be detachably coupled to the flip chart stand. This facilitates portability, since only a portion of the display apparatus need be transported from place to place, which portion may be used with standard flip chart stands often available at locations where presentations are to be performed.

While many self-adherent films which may be erasably written upon with dry erase markers might be suitable for use as a writing medium in the invention, the preferred material is an electret film. The electret film of the invention is known per se. It may consist of a flexible plastic film, such as is sold by Hercules, Inc. under the designation XK-30, in which a static electrical charge has been induced. Such films are available in either substantially transparent or substantially opaque form, and may be erasably written upon with dry erase markers.

In accordance with the first embodiment of the invention, a supply of electret film 24 is disposed adjacent plate 10 so that film may be conveniently dispensed from the supply to the plate 10. The supply of electret film comprises a roll 30 of electret film material housed in a receptacle 16 from which it may be withdrawn. Receptacle 16 is detachably secured to the flip chart stand by brackets 14. The apparatus also includes means for facilitating dispensing electret film material in sheet form. This means includes a cutting assembly 17, known per se and shown in perspective in Figure 3, which includes a cutting stage 18 detachably secured (by means not shown) to plate 10, a blade holder 22 including blade 23 which is slideably mounted for lateral movement along a guide 20 which is spaced from cutting stage 18 so as to permit material 24 to pass between cutting stage 18 and guide 20. Cutting stage 18 may include a groove or channel 25 to receive and guide blade 23 during cutting. Cutting assembly 17 is desirably detachably secured to plate 10, such as by mating pieces of hook and loop fasteners sold under the trademark VELCRO disposed on each of them. Material 24 may be withdrawn from receptacle 16, fed through cutting assembly 17, withdrawn so that a desired amount of material is below cutting assembly 17, and cut to provide a sheet by laterally moving blade holder 22 so

that the blade therein severs the electret film. The sheet of material 24 thus formed may be moved as desired to position it for writing with respect to plate 10, and will adhere to the surface of plate 10 due to the electrostatic attraction between the charges in the electret film and the induced charges in plate 10. The sheet of material thus formed provides a convenient writing medium. When the first side of sheet has been filled, it may be erased and rewritten upon or it may be reversed so that the second side may be used.

An important feature of the invention is that sheets dispensed by means of receptacle 16 and cutting means 17 may be stacked on plate 10. Since sheets of electret film material adhere to each other as well as to different materials, such sheets may be dispensed one over top of another to form successive overlays. With the subject material described above, stacks in excess of 50 sheets thick have been secured to a plate 10 solely by means of the electrostatic attraction of the sheets.

A further advantage of the invention is that other sheet materials will adhere to the electret film by virtue of electrostatic attraction. Accordingly, preprinted sheets of ordinary material such as paper, of any size less than about the electret film sheet size, may be placed against the uppermost sheet of electret film material and will adhere thereto. Such preprinted sheets may also be disposed between layers of electret film material. Such preprinted sheets may be used to display information relating to material already displayed on the apparatus, or to form a background visible through succeeding transparent electret film layers overlaid on the preprinted layer, or both. Such capability greatly facilitates presentations in which a portion of the presentation is to be repetitively used in successive presentations. Such portions may be

preprinted on sheets of material, either electret film or ordinary materials such as paper, placed upon the display apparatus, and overlaid with transparent materials so that the presenter may erasably write upon the transparent material without destroying the background information.

Figure 2 shows a side view of the apparatus shown in Figure 1. As shown therein, receptacle 16 is detachably secured to a chart stand comprising legs 12 and plate 10 by means of brackets 14, which are shown in perspective in Figure 4. Bracket 14 includes a generally U-shaped upper portion 15 for supporting receptacle 16 and an elongated lower portion 13 for detachably securing the bracket 14 to the legs 12 of a chart stand. The lower portion 13 of the bracket 14 includes a pair of U-shaped portions 42 adapted to be placed over leg 12 to aid in securing bracket 14 thereto. U-shaped portions 42 are provided with threaded holes into which screws 44 are threaded, whereby when screws 44 are tightened the leg 12 is clamped between the screw 44 and the opposite portion of U-shaped portion 42.

Receptacle 16 is removably mounted in bracket 14 so as to dispense electret film material 24 in the direction of plate 10. In the embodiment shown, receptacle 16 comprises a box-like structure adapted to receive a roll 30 of electret film material 24 therein. Receptacle 16 comprises a generally concave box-like portion 34 and a cover portion 46 hinged thereto at 40 whereby the receptacle 16 may be opened for insertion or removal of a roll 30 of material and for storage and access to the interior of receptacle 16. Cover 46 may be hinged to concave portion 34 by separate hinges or by a flexible hinge region integrally molded into receptacle 16. Roll 30 includes an axle 32 which is rotatably mounted at each end thereof in cradles 48

disposed at the ends of receptacle 16. Cradles 48 may include a cutaway portion for facilitating insertion and removal of the axle ends into the cradle. Receptacle 16 includes a slot-like aperture 38 through which the electret film 24 may be fed in order to conduct same to a writing position on plate 10. Receptacle 16 may be constructed of plastic or any other suitable material.

Receptacle 16 is desirably sized so as to accommodate within its interior space the brackets 14 and the cutting assembly 17, as well as the roll 30 of electret film material. In this way, these components may be easily stored and/or transported to a site for assembly together with a flip chart stand at the site.

Figures 5 and 6 show modifications of the electret film dispensing apparatus which, like the embodiment of Figures 1-4, are useful as substitutes for paper flip charts.

Figures 5a, 5b, and 5c show a first modification of the first embodiment which is suitable for use with flip chart stands in which a non-removable pad clamp at the top of plate 10 interferes with attachment of cutting assembly 17 to plate 10. This second embodiment also includes an alternative means for detachably securing the bracket to the receptacle.

Figure 5a shows a receptacle 50 generally similar to receptacle 16 shown in Figure 1, but which further includes an outer pair of slots having openings 52 and an inner pair of slots having openings 54, all of which openings are in the lower front edge of the receptacle and all of which slots extend perpendicular to the front surface into the interior of the receptacle. Such slots may, for instance, be molded into receptacle 50. Figure 5b shows a bracket 60 including U-shaped portions 62 secured to member 55

having screws 66 for clamping bracket 60 to a leg 12 of a flip chart stand. Instead of a U-shaped upper portion for cradling the receptacle, as shown in Figure 4, the bracket 60 of Figure 5b includes a tab-like portion 64 adapted to be inserted in one of the slots 52 in receptacle 50 for supporting receptacle 50 when brackets 60 are clamped to a flip chart stand. Figure 5c shows the general features of a cutting assembly 70 having a cutting stage 72, a blade holder 74 and a guide 76 identical to the corresponding members illustrated in Figure 3. Cutting assembly 70 differs from that shown in Figure 3 in that it further includes tab-like projections 78 which are adapted to be inserted into slots 54 of receptacle 50 so as to detachably secure cutting stage 72 to receptacle 50. Desirably, receptacle 50 includes sufficient internal space to store both cutting assembly 70 and brackets 60 in addition to the electret material for convenience of transport.

Figure 6 shows a second modification of the apparatus of Figures 1-4 which is useful particularly when the width of the electret film material to be used is greater than the width of standard flip chart holders. The third embodiment includes a receptacle 80 housing a supply of electret film 82, desirably in the form of a roll, which is dispensed through a slot 84 in the bottom surface of the receptacle. Figure 6b shows in perspective a bracket, a pair of which may be disposed around receptacle 80 at the left and right ends thereof in order to support a cutting assembly 100 as shown in Figure 6c adjacent the slot 84. Bracket 90 includes a U-shaped portion 92 adapted to receive within it receptacle 80, and a hinged portion 94 hinged at 96 to U-shaped portion 92 and which desirably includes latch means (not shown) at the opposite end 97 of portion 94 to latch it to U-shaped portion 92 to secure receptacle 80 within bracket 90. Bracket 90 further

includes a slot 98 adapted to receive one of the laterally projecting tabs 102 of cutter 100. Except for the tabs 102, cutter 100 is in all respects like the cutters shown in Figures 3 and 5c, including a cutting stage 104, a groove or channel 105, a blade holder 106, a blade 107, and a guide 108.

Apparatus according to the second modification, comprising a receptacle 80 and a cutting assembly 100 secured thereto by a pair of brackets 90, is adapted to be mounted to a vertical surface such as a wall or a chalk board, with the rear surface 86 of receptacle 80 adjacent and parallel to such surface and the electret film 82 withdrawn downwardly through slot 84 and cutter 100 so that electret film 82 may be dispensed in sheet form onto the vertical surface below the apparatus. Apparatus comprising a receptacle 80, brackets 90, and cutting assembly 100 may be removably mounted to a vertical surface by any suitable means, such as a strip of VELCRO or similar hook and loop fastening material 88 (partially shown in Figure 6a) affixed to the rear surface of receptacle 80 for mating with a piece of VELCRO mounted on the vertical surface.

Various other modifications of the apparatus of the first embodiment may be made while still fulfilling the function of delivering electret film material to a supporting surface in sheet form. For instance, the cutting assembly may be dispensed with and the roll of material provided with frangible means such as lines of perforations 110 as shown in Figure 6a or other weakened zones to facilitate tearing off sheets without use of a cutting member. Alternatively, the receptacle may be provided with blade means such as a serrated or otherwise sharp edge adjacent the slot, e.g. slot 38 in Figure 2 may comprise a sharpened or serrated edge, so that the material may be cut against it by pulling the sheet in a fashion analogous to that used

with kitchen wrapping materials such as aluminum foil and plastic film wrap. Such alternatives are believed to be less desirable than the blade cutter shown because they are less convenient and they tend to distort the material when it is torn. It will also be understood that cutting into sheets may be effected by a moveable blade which is not guided by a guide assembly as shown..

In the foregoing embodiments, the receptacle in which the electret film material is disposed functions as a container which protects the film from damage during storage and transportation, and may house ancillary components as well. During storage or transportation, previously prepared sheets which are desired to be stored or transported for further use may be disposed within the receptacle, such as by winding them around the roll of unused film. Referring to the apparatus shown in Figures 1 and 2 it is seen that the maximum dimension of the container is less than the maximum dimension of the sheet which may be withdrawn and provided for display, and that the total dimension of the container (i.e. the sum of its length, width, and height) is less than the total dimension of the sheet which may be provided. This space efficiency provides for great convenience in transportation and storage and, for a given size sheet to be used for presentation and display, provides a much smaller package than a pad configuration.

In a second embodiment of the invention, shown in Figures 7-10, the electret film is stored and transported in the form of a plurality of sheets in an overlying relationship. Preferably, the container in which the film is so transported may be adapted to provide a surface against which the sheets may be disposed for presentation and display purposes. It is preferred that a single structure provide both the supporting and packaging functions. Therefore, in the

preferred embodiment illustrated, a single structure supports large sheets of a flexible writing medium during a presentation in one configuration and provides a smaller, easily transported protective package for the writing medium in another configuration. This single structure will be referred to herein for convenience as a "support".

Figure 7 shows the support 210 in an open configuration for displaying graphic information on a writing medium comprising a plurality of flexible sheets 242 such as electret film sheets. Support 210 may be disposed in a vertical configuration so that the audience to whom a presentation is directed may view the information on sheets 242. To this end, a pair of holes, preferably reinforced by eyelets 240, is provided near the upper edge of the support 210. These holes may be placed over projections on a flip chart stand, on a wall, or on another structure to maintain the writing apparatus in a vertical orientation during a presentation.

Support 210 includes a plurality of panels 212, 214, 216, 218, and 220 which are secured to one another along adjoining edges. In the open configuration shown, these panels are disposed in a generally planar configuration to form a generally planar supporting surface for sheets 242. Such a generally planar surface facilitates writing on sheets 242 by providing a backing for the sheets.

The sheets 242 are stacked in an overlying relationship generally parallel to the planar supporting surface provided by support 210. Sheets 242 are releasably secured to support 210 by releasable securing means. In the preferred embodiment shown, the releasable securing means is provided by a pair of clips 234, each of which includes a releasable clamp-like

structure for urging the sheets together and holding them in a pad-like configuration by means of friction. The preferred clip structure is described below with respect to Figures 8a and 8b. Each of the panels 212-220 is flexibly secured to adjacent panels so that a hinge-like structure is formed at the panel edges. This hinge-like structure permits the panels to be folded to reconfigure the support 210 in a smaller, generally closed package suitable for convenient transport or storage of the presentation system. The folded configuration is further described below with respect to Figure 10.

The effectiveness of a presentation is often enhanced by information written by the presenter during the course of the presentation. This requires that the presenter have access to implements associated with writing, such as markers and erasers, during the course of the presentation. To this end, the apparatus preferably includes a support for such writing implements. In the embodiment shown in Figure 7, the writing implement support 230 is a tray-like five-sided box, open at its top, secured to panel 220, which is open at its top to provide access to writing implements such as marker 232 during a presentation.

Figures 8a and 8b show the preferred clip 234 used to releasable secure sheets 242 in a pad-like configuration. The clip 234 is a single piece of molded plastic, although other structures could no doubt be employed. Clip 234 includes four primary component structures. A base portion 250 is secured to panel 214, such as by rivets 256. A closure portion 252 is moveably secured to base 250 by hinge portions 254, to enable closure portion 252 to rotate about the line defined by hinge portions 254. A releasable catch 270 engages closure portion 252 at lip 266 thereof when the closure portion 252 is rotated and pressed toward base

portion 250. This catch mechanism secures clip 234 in a closed configuration in which surface 268 of closure portion 252 and surface 258 of base portion 250 are urged toward one another to provide a clamping action.

To assemble sheets 242 of a writing medium into a pad-like configuration, both of the clips 234 shown in Figure 7 are opened as shown in Figure 8A. The overlying sheets 242 are then disposed against the panels 212-220, with a portion of the stack of sheets 242 overlying the surfaces 258 of the open clips. The closure portions 252 are then rotated around hinge portions 254, so as to bring surfaces 268 into contact with the uppermost sheet 242 of the stack. Continued pressure on closure portions 252 causes them to deflect, applying a spring-like clamping force urging surfaces 258 and 268 together, which force maintains the sheets 242 in an overlying relationship in a pad-like structure releasably secured by the clips 234. With sufficient pressure on closure portion 252, lip 266 of closure portion 252 is forced past projection 264 of catch 270. When pressure on closure portion 252 is thereafter released, projection 264 engages lip 266 to prevent opening of the closure and maintain the clamping force between surfaces 268 and 258. The clip may be opened to release the secured sheets or to add further sheets by pressing upon lever 262, which deflects projection support 260 so as to move projection 264 out of engagement with lip 266.

The ability of clips 234 to secure sheets may be controlled in part by the characteristics of surfaces 258 and 268. As shown, surfaces 258 and 268 include sets of parallel ridges to improve the securing ability of the closed clip 234.

Figure 9 illustrates use of the invention in the course of a presentation. The presenter 280 has

secured the support 210 to a wall so that it is vertically disposed and graphic information on sheets 242 can be viewed by an audience. Because of the frictional engagement of the sheets 242 to the support 210, a sheet can be easily removed from the pad-like stack of sheets maintained by the support 210, merely by pulling downwardly on a sheet to be removed. The clips of the preferred embodiment permit this to be done without opening the clips, so that the remaining sheets are maintained in a pad-like form for continued use.

A sheet 242 may be removed merely to expose a fresh writing surface on the underlying sheets. Removed sheets may also be displayed, so that the audience can view information on a plurality of sheets and is not confined to viewing the topmost sheet of a pad. In Figure 9, sheet 242A has been removed and secured to the wall, to enable the audience to view and the presenter 280 to write upon both the topmost sheet 242B remaining secured to the support 210 and the removed sheets 242A.

Preferably, the sheets 242 are self-adherent to other surfaces. Particularly preferred as sheets 242 of a writing medium are sheets of plastic electret film. Such self-adherent sheets facilitate the simultaneous display of a plurality of sheets during a presentation, since it is only necessary to place a removed sheet against a wall or like vertical surface, and the sheet will be detachably secured to such surface by electrostatic attraction. The self-adherent properties of such sheets also facilitates maintaining them in a pad-like stack upon support 210.

The self-adherent properties of such sheets, as well as the lack of a permanent binding of such sheets into a pad, provide great flexibility and convenience in organizing sheets in preparation for a presentation and reorganizing then for use in a future

presentation. For instance, preprinted sheets may be interspersed with transparent sheets and opaque sheets in any manner desired by the presented to illustrate a particular presentation. Referring to Figure 9, the presenter might assemble the apparatus so that the top sheet 242A contains frequently used introductory or summary information, the next sheet 242B is transparent, and the next sheet 242C is opaque with pre-printed basic information upon which the presenter wishes to elaborate. After giving an introduction or summary with reference to sheet 242A, the presenter 280 may then remove sheet 242A and adhere it to the wall adjacent the apparatus, to yield the situation illustrated in Figure 9. The presenter may then write upon transparent sheet 242B to add graphic information to that of underlying sheet 242C, the writing on which can be viewed through transparent overlying sheet 242B. Sheet 242A will still be accessible for reference by the presenter or the audience.

After the presentation, the presenter can re-assemble sheets 242 in the desired order and re-secure them to support 210 by the releasable clips 234. Sheets which were written upon during the course of the presentation can be maintained as a record of the presentation or if erasable can be erased to permit reenactment of the presentation. Further, because of the sheets are releasably securable but not permanently bound into a pad structure, modification of the pad structure as desired for a particular presentation is easily accomplished.

Figure 10 shows the apparatus folded into a boxlike configuration for ease of transportation or storage. The folded configuration of the preferred embodiment is a rectangular prism, with the panels 212, 214, 216, and 218 on the exterior to form a protective enclosure for writing medium sheets 242. To form the

support into the package configuration of Figure 10, the panels 212-220 are folded around the hinges 222-228 provided at their adjoining edges. Panels 212 and 220 are provided with mating female snap portions 238 and male snap portions 236, respectively, and when the panels 212 and 220 overlie one another the snaps are engaged to secure the structure in the container configuration. A handle 290 may be secured to one of the panels to permit carrying the presentation system in the manner of an attache case. As shown the handle 290 is attached to panel 216, but it might also be attached to panel 212 where it would provide an additional means of hanging the support 210 during a presentation.

It should be noted that when panel 220 is rotated by 90° about hinge 228, the open top of box 232 is closed off by panel 218, and the closed-off condition is maintained without auxiliary securing means because the box 232 is contained between parallel spaced panels 218 and 214, and any writing implements therein such as markers 232 are fully secured during transportation or storage.

The folded configuration of the apparatus is substantially smaller in maximum dimension and in total dimension (length plus width plus height) than the open configuration, which is more or less determined by the size of the sheets desired. The folded configuration is also substantially smaller in maximum and total dimension than the sheets which may be transported and displayed using the apparatus. Thus, the presentation system of the invention can both provide a large writing surface during a presentation and a small carrying package which can be taken aboard an airplane as carry-on baggage. For instance, apparatus substantially as shown in the drawings may display 18"x23" sheets when open and fold to a 12"x20"x2" package.

Applicant has found that folds may undesirably occur in the sheets 242 if the support is merely folded up as described. Therefore, applicant prefers first to grasp the bottoms of the sheets, bring them up, open the clips 234, and resecure the clips 234 so that the bottom corners of the sheets are also clamped in clips 234 overlying the top corners of the sheets. Folds in the sheets are avoided when the support 210 is then folded to its packaging configuration.

The panels of the support may be formed from a core of cardboard with a suitable covering such as plastic or plastic-impregnated cloth. Hinges 222-228 may be formed by securing pieces of flexible material such as plastic-impregnated cloth between panels; Figure 8 shows such a flexible sheet 272 secured to panels 212 and 214 by rivets 270 to provide hinge 222. Adhesive between such a sheet 272 and the panels 212 and 214 may also be used to secure the panels to one another by a flexible sheet 272 to form a hinge.

Variations of the preferred embodiment disclosed in Figures 7-10 may be made by those skilled in the art without departing from the spirit and scope of the invention. For instance, releasable securing means may be provided which utilize other materials or structures, or which are disposed in other locations or numbers than those shown herein. Different numbers and configurations of panels may be provided in structures which open to provide a large presentation surface and close to form a small protective package; for instance, side panels may be provided to form a fully-enclosed container for the writing medium. Structures other than handles, such as straps, may by provided to facilitate a person carrying the presentation system, and such structures may be disposed at other locations on the apparatus than those described. Other or additional means may be provided to support the apparatus in a

vertical orientation, such as hook-and-loop fasteners like those sold under the mark VELCRO. Other materials may be used as a writing medium, such a plastic films which adhere to surfaces by "static cling" but are not electrets, or even paper.

It is thus seen that the writing apparatus of the present invention, including electret film material as a writing medium, provides erasable and reusable writing surfaces which may be conveniently and inexpensively used in a variety of display, presentation and educational applications. While particular apparatus has been disclosed, the various modifications will no doubt occur to those skilled in the art without departing from the spirit and scope of the invention, which is not to be limited to the particular embodiments shown.

What Is Claimed Is:

1. Apparatus for facilitating use of electrostatically adherent film as a writing medium comprising a supply of said film and a container for said film supply, wherein said container is adapted to substantially enclose said film supply in a first mode suitable for transportation or storage of said apparatus and is adapted to provide a portion of said supply as a generally planar vertically disposed skeet in a second mode suitable for writing upon and displaying said sheet during a presentation.

2. Apparatus according to claim 1, wherein said film is disposed in said container in a non-planar form in said first mode.

3. Apparatus according to claim 2, wherein said supply of film comprises a roll of film.

4. Apparatus according to claim 2, wherein said supply of film comprises a plurality of sheets disposed in an overlying relationship.

5. Apparatus according to claim 4, wherein said container comprises a plurality of hinged panels which may be disposed in a generally planar configuration in said second mode to provide a supporting surface for said sheets, and which may be disposed in a generally box-like configuration in said first mode.

6. Apparatus according to claim 4, wherein said container includes means for releasably securing said sheets to said container.

7. Apparatus according to claim 6, wherein said releasable securing means includes a clip which frictionally engages said sheets.

8. Apparatus according to claim 1, wherein said container includes a handle.

9. Apparatus according to claim 1, wherein said container includes means for holding writing implements accessible to a presenter in said second mode.

10. Presentation apparatus comprising a container and a supply of electrostatically adherent film suitable for use as a writing medium disposed therein, said apparatus including means for providing a portion of said film supply as a generally vertically disposed sheet, wherein the total dimension of said container is smaller than the total dimension of said sheet.

11. Apparatus according to claim 10, wherein the maximum dimension of said container is smaller than the maximum dimension of said sheet.

12. Apparatus according to claim 10, wherein said film is disposed in said container as a roll.

13. Apparatus according to claim 10, wherein said film is disposed in said container as a plurality of sheets overlying one another.

14. Apparatus according to claim 13, wherein said container comprises a plurality of hinged panels which may be disposed in a generally planar configuration in said second mode to provide a supporting surface for said sheets, and which may be disposed in a generally box-like configuration in said first mode.

15. Apparatus according to claim 13, wherein said container includes means for releasably securing said sheets to said container.

16. Apparatus according to claim 15, wherein said releasable securing means includes a clip which frictionally engages said sheets.

17. A method of providing electrostatically adherent film for use as a writing medium comprising the steps of:

disposing a supply electrostatically adherent film in a non-planar form in a container for storage or transportation thereof; and

converting a portion of said supply to a generally planar, generally vertically disposed sheet adjacent a generally planar support, whereby said sheet may be written upon during a presentation.

18. The method of claim 17, wherein said container comprises said support.

19. The method of claim 18, wherein said container comprises a plurality of hinged panels, and said converting step includes moving said panels about said hinges whereby said panels are converted from a box-like structure to a generally planar structure.

20. The method of claim 18, further comprising the step of releasably securing said supply of film to said container.

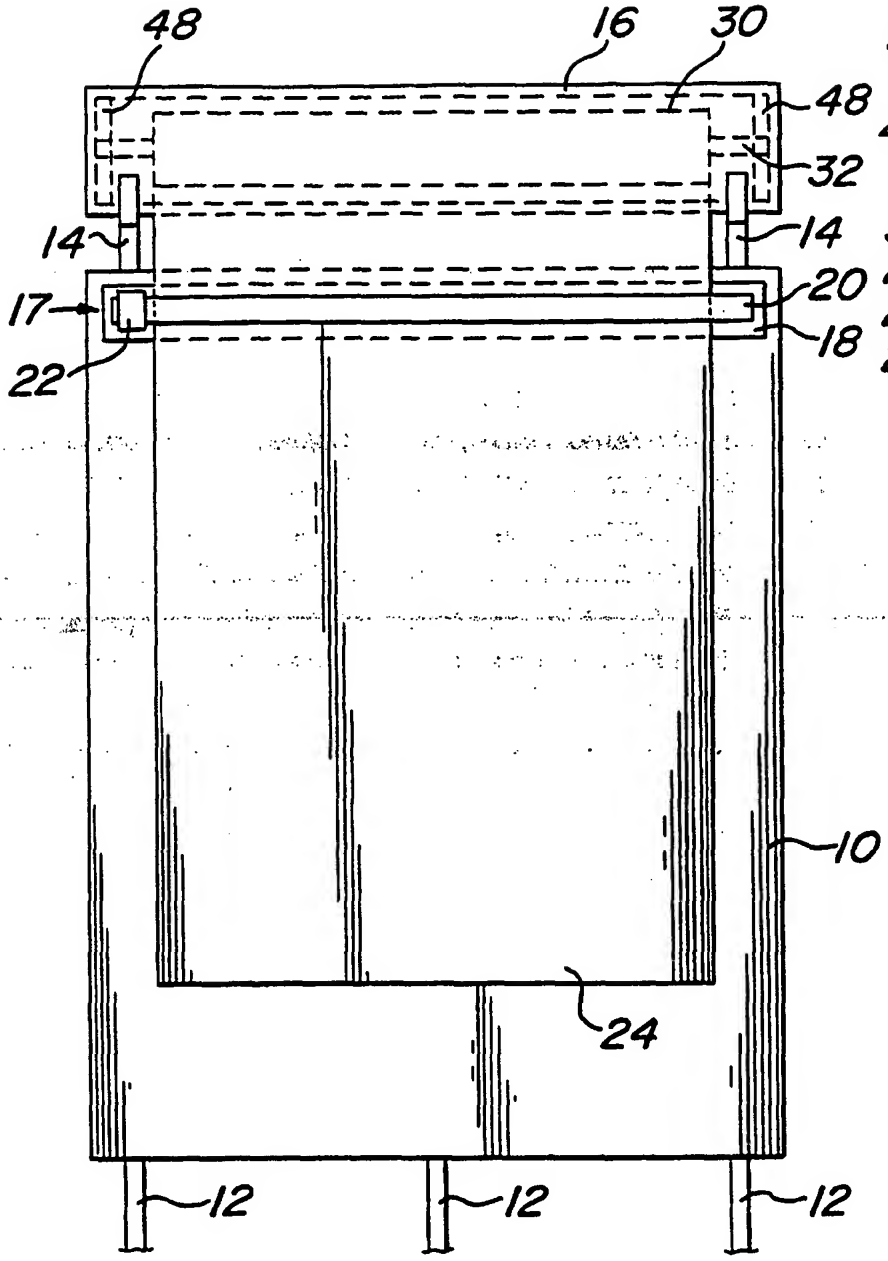

FIG. 1

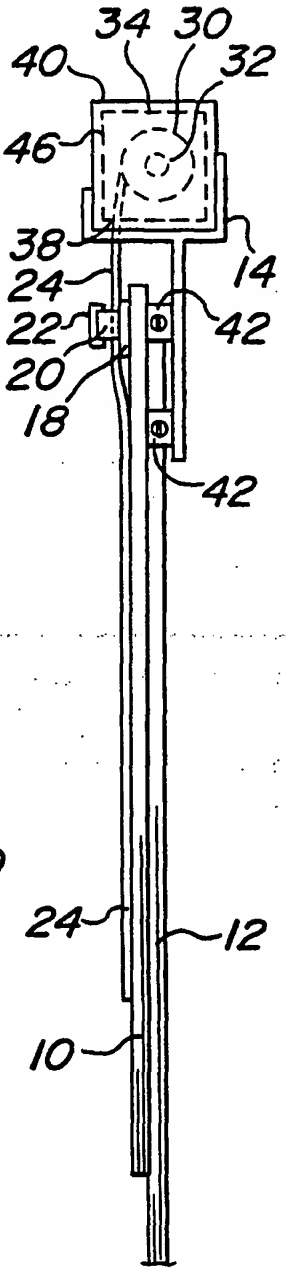

FIG. 2

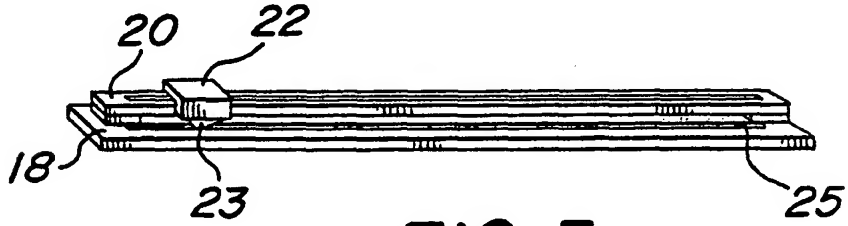

FIG. 3

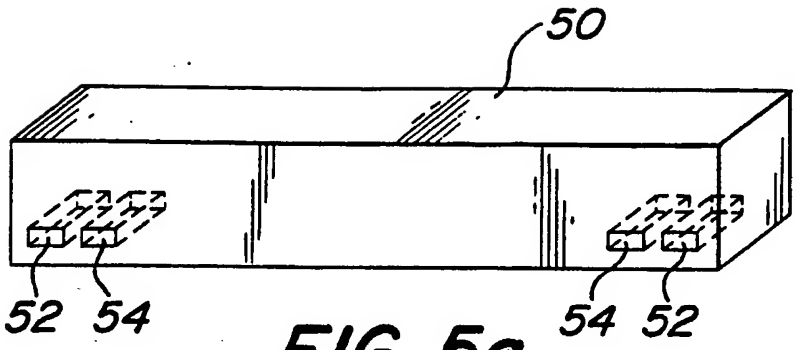

FIG. 5a

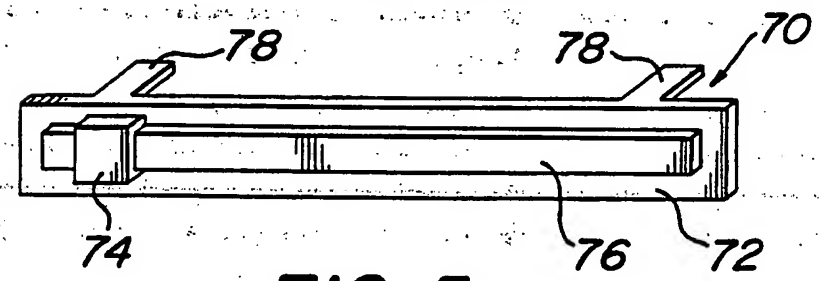

FIG. 5c

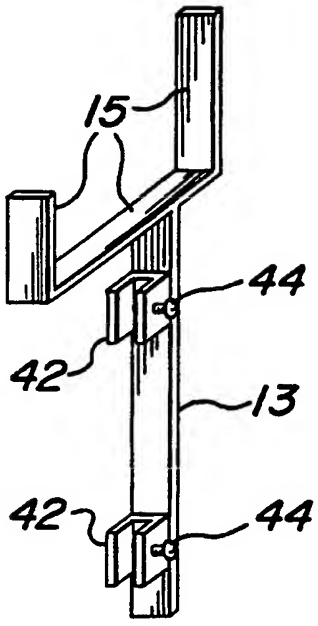

FIG. 4

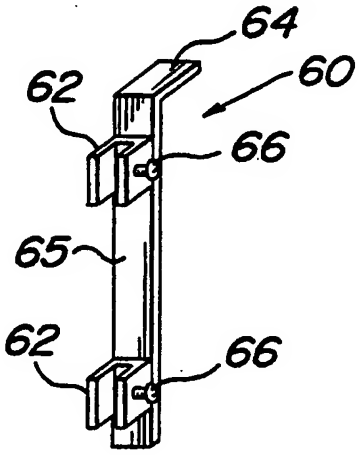

FIG. 5b

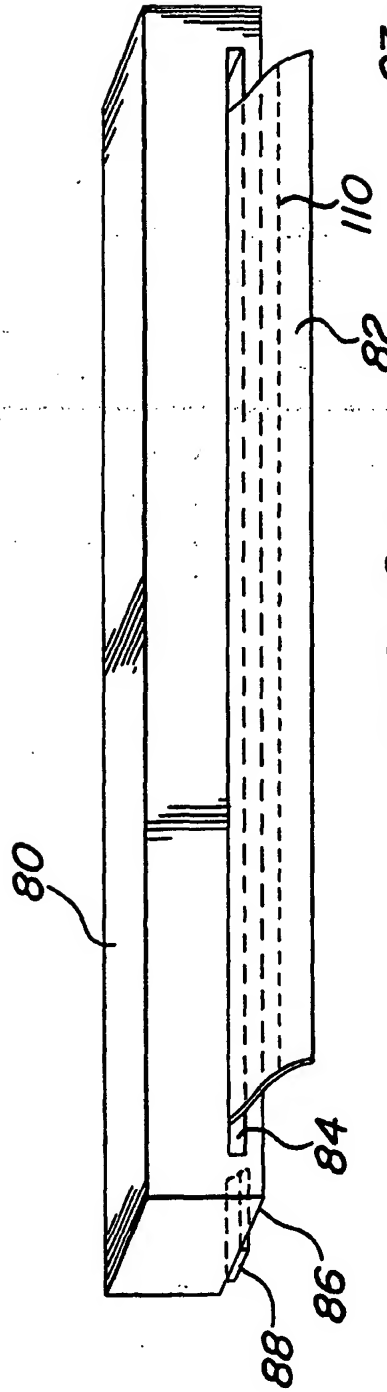

FIG. 6a

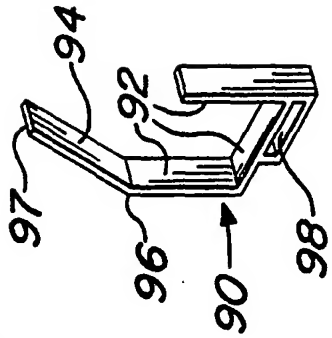

FIG. 6b

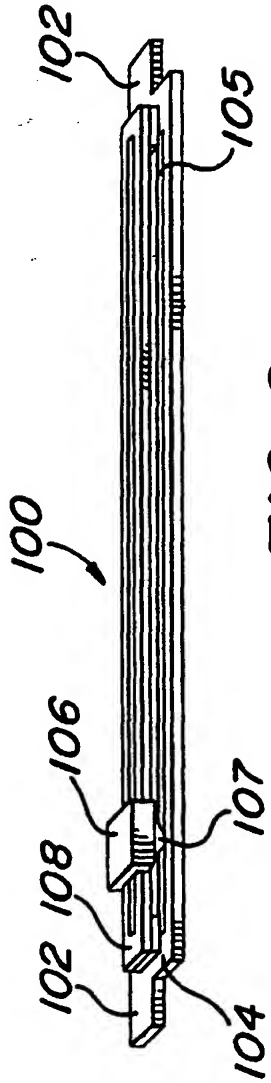

FIG. 6c

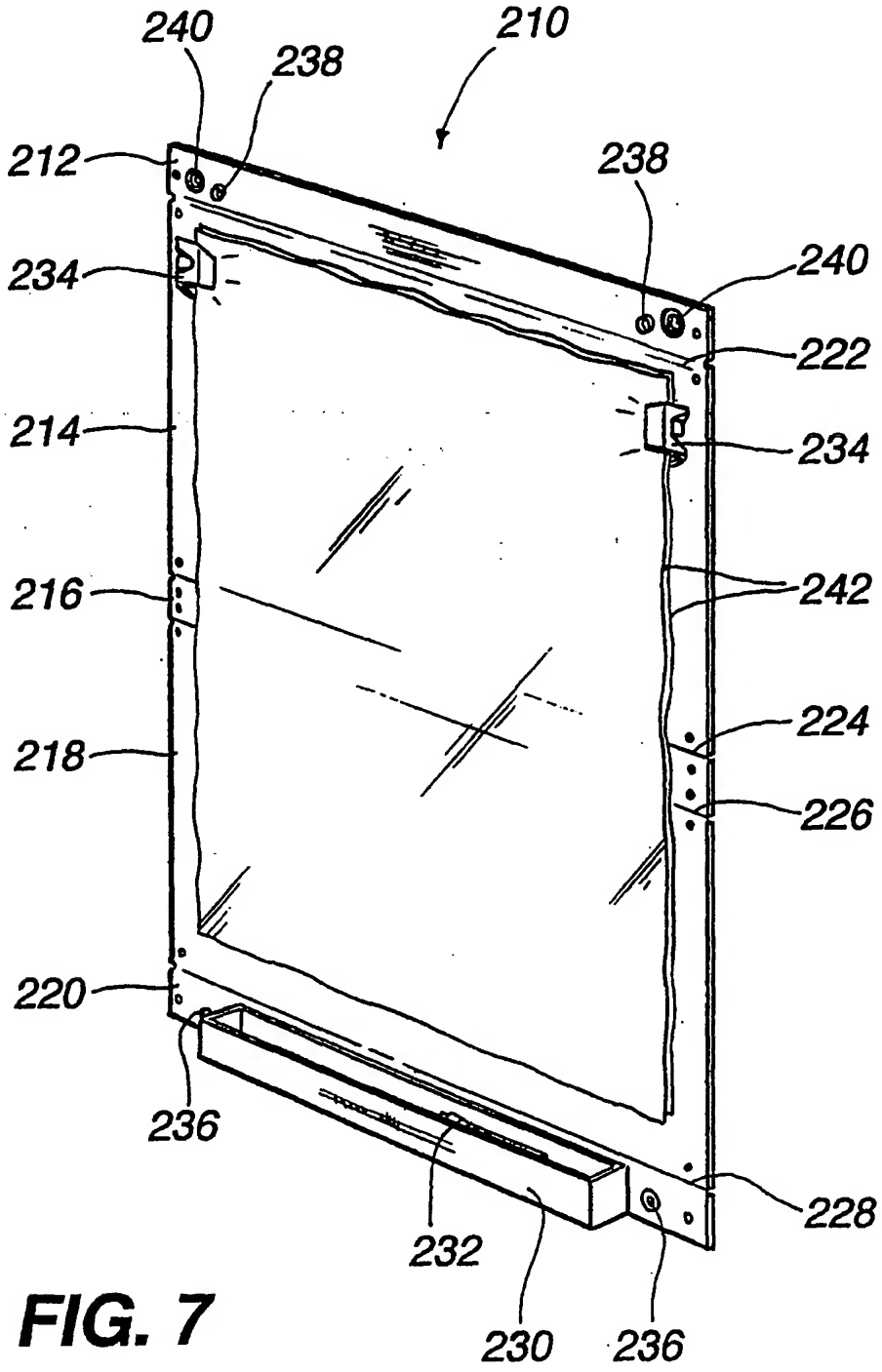
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FIG. 7

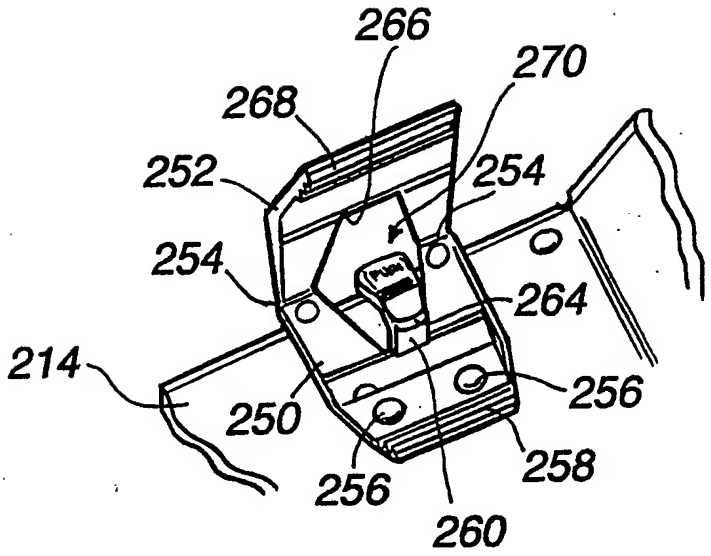
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FIG. 8a

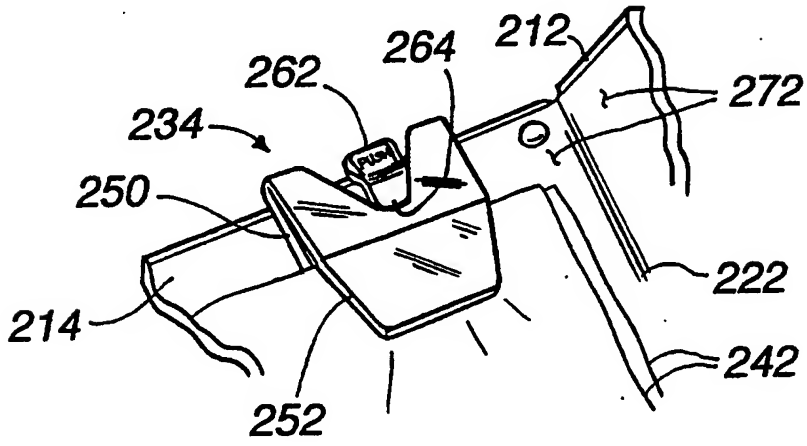
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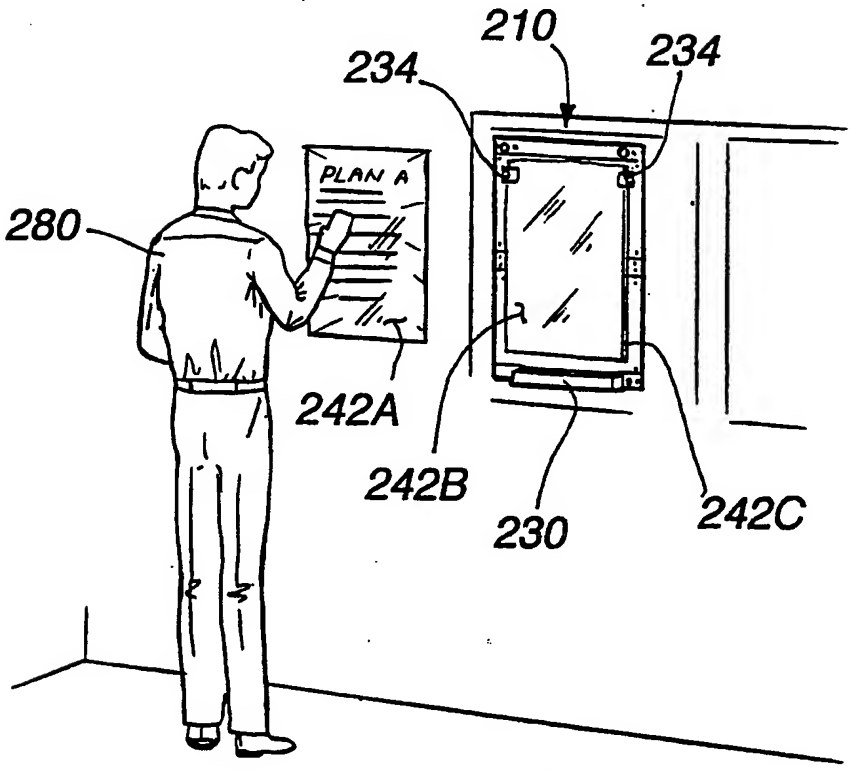
FIG. 8b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PLAN A
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242C

FIG. 9

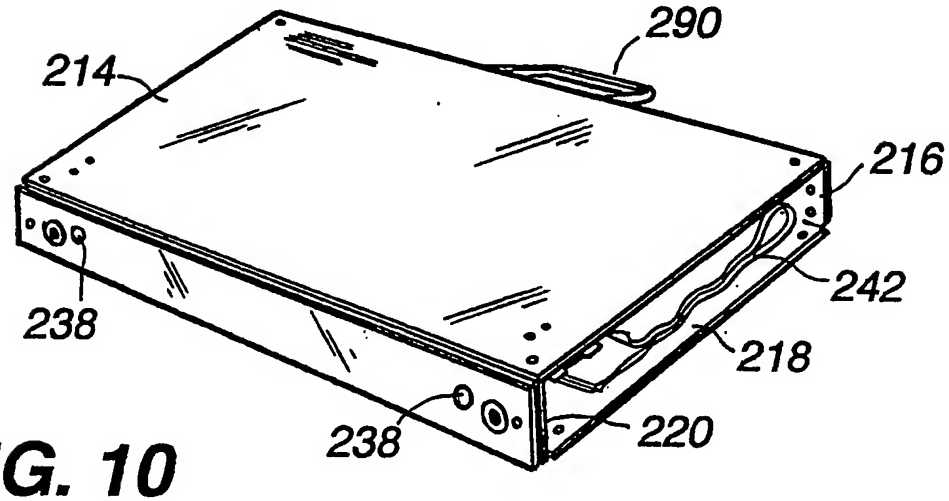
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FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US94/04860

A. CLASSIFICATION OF SUBJECT MATTER

IPC(5) :B43L 1/00; G09F 11/18
US CL :40/514, 594; 434/412, 413, 426

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 40/512, 514, 594; 434/412-415, 426

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US, A, 1,136,575, (F. J. WOHLCKE ET AL.), 20 April 1915. See whole document.	7, 16
Y	US, A, 853,042, (J. THOMSON), 07 May 1907. See whole document.	7, 16
Y	US, A, 5,163,845, (BLASSINGAME), 17 November 1992. See whole document.	8, 9
Y	US, A, 3,587,183, (WILLIAM E. DAVIS), 28 June 1971. See whole document.	1-6, 10-15, 17-20
Y	US, A, 5,010,671, (STONEHOUSE), 30 April 1991. See whole document.	1-6, 10-15, 17-20
A	US, A, 601,416, (J. P. HARRISON), 29 March 1898. See whole document.	1-20

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be part of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
01 JULY 1994	10 AUG 1994
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer PAUL HIRSCH
Facsimile No. (703) 305-3230	Telephone No. (703) 308-2697

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US94/04860

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US, A, 1,966,276, (J. ARMSTRONG), 10 July 1934. See whole document.	1-20
A	US, A, 4,741,119, (BARYLA), 03 May 1988. See whole document.	1-20
A	US, A, 4,761,139, (MASHIACH), 02 August 1988. See whole document.	1-20
A	US, A, 1,001,402, (HINDLE), 22 August 1911. See whole document.	1-20
Y	US, A, 4,670,794, (ARAKI ET AL.), 02 June 1987. See whole document.	1-20